

IN THE CLAIMS

1. (Currently amended) An apparatus for ~~manufacturing a semiconductor device forming a thin film~~, the apparatus comprising:

a chamber having a gas inlet and a gas outlet, said chamber having an upper part with a dome configuration;

a susceptor provided in said chamber to ~~permit a wafer to be placed~~ place the wafer thereon; and

a non-mesh plasma electrode to which RF power is applied to generate a plasma within said chamber, the non-mesh plasma electrode structured to form a thin film on a wafer;

wherein said plasma electrode is of a truncated dome shape to cover said upper part, and wherein the electrode has a lower opening and an upper opening, and wherein a diameter of the upper opening is ~~sized greater than about one third of a diameter of the lower opening~~ to form a thin film having a uniform thickness,

wherein the upper opening overlying the lower opening, the upper opening having a diameter smaller than the lower opening, the lower opening closer to the susceptor than the upper opening.

2. (Previously presented) The semiconductor device manufacturing apparatus according to claim 1, said upper opening has a width of about 70mm to 300mm.

3. (Currently amended) A thin film forming method using a semiconductor device manufacturing apparatus comprising a chamber having a gas inlet and a gas ~~outlet~~ outlet, said chamber having an upper part with a dome configuration, a susceptor provided in said chamber to ~~permit place a wafer to be placed~~ thereon; and a non-mesh plasma electrode to which RF power is applied to generate a plasma within said chamber, wherein said plasma electrode is of a truncated dome shape to cover said upper part, wherein the electrode has a lower opening and an upper opening, and wherein a diameter of the upper opening is ~~greater than about one third of a diameter of the lower opening~~ sized to form a thin film having a uniform thickness, wherein the upper opening overlying the lower opening, the upper opening having a diameter smaller than the lower opening, the lower opening closer to the susceptor than the upper opening; and

applying said plasma electrode with RF power of about 700W to 1000W when using a hydrogen containing plasma to form a ~~Si_xN_y~~ Si_xN_y thin film having a uniform thickness.

4. (Previously presented) The thin film forming method according to claim 3, said hydrogen containing plasma is formed by a gas mixture of SiH₄ and NH₃.

5. (Currently amended) A thin film forming method using a semiconductor device manufacturing apparatus comprising a chamber having a gas inlet and a gas ~~outlet-outlet~~, said chamber having an upper part with a dome configuration, a susceptor provided in said chamber to ~~permit place~~ place a wafer ~~to be placed thereon~~; and a non-mesh plasma electrode to which RF power is applied to generate a plasma within said chamber, wherein said plasma electrode is of a truncated dome shape to cover said upper part, wherein the electrode has a lower opening and an upper opening, and wherein a diameter of the upper opening is ~~greater than about one-third of a diameter of the lower opening sized to form a thin film having a uniform thickness, wherein the upper opening overlying the lower opening, the upper opening having a diameter smaller than the lower opening, the lower opening closer to the susceptor than the upper opening; and~~

applying said plasma electrode with RF power of about 500W to 1000W when using a hydrogen containing plasma to form a DLC thin film or SiC thin film having a uniform thickness.

6. (Previously presented) The thin film forming method according to claim 5, said hydrogen containing plasma is formed by a gas mixture of CH₄ and H₂ when forming said DLC thin film, and by a gas mixture of SiH₄, CH₄ and H₂ when forming said SiC thin film.

7. (Currently amended) The apparatus of claim 1, wherein ~~the~~ an inner diameter of the electrode gradually becomes smaller from the bottom of the electrode toward the top of thereof.

8. (Currently amended) An apparatus for ~~manufacturing a semiconductor device forming a thin film~~, the apparatus comprising:

a chamber having a gas inlet and a gas outlet, said chamber having an upper part with a dome configuration;

a susceptor provided in said chamber to ~~permit place~~ a wafer ~~to be placed~~ thereon;
and
a non-mesh plasma electrode to which RF power is applied to generate a plasma within said chamber;
wherein said plasma electrode is of a dome shape to cover said upper part wherein the electrode has an upper opening sized to deposit a thin film having a uniform thickness on a wafer,
wherein the upper opening overlying the lower opening, the upper opening having a diameter smaller than the lower opening, the lower opening closer to the susceptor than the upper opening.
wherein said upper opening has a diameter of about 70mm to 300mm.

9. (cancelled)

10. (Cancelled)